

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings of claims in the application.

Listing of Claims:

1. (cancelled)
2. (currently amended) The mask as claimed in claim ~~1~~ 14, wherein the auxiliary pattern is disposed on at least one of a central portion of the ~~top~~ first surface of the ~~quartz substrate~~ and a central portion of the ~~bottom~~ second surface ~~defining the bottom of the trench.~~
3. (currently amended) The mask as claimed in claim ~~1~~ 14, wherein the auxiliary pattern is of an optical interference material.
4. (currently amended) The mask as claimed in claim ~~1~~ 14, wherein the auxiliary pattern is of an opaque material.
5. (currently amended) The mask as claimed in claim ~~5~~ 4, wherein the auxiliary pattern is of chromium.
6. (currently amended) The mask as claimed in claim ~~1~~ 14, wherein the auxiliary pattern has a line width of 30 nm to 200 nm.
7. (currently amended) A method of fabricating a phase edge phase shift mask, the method comprising:
providing a transparent substrate;
etching the ~~quartz~~ transparent substrate to form a trench in the substrate, the

trench being situated beneath a ~~top~~ first surface of the substrate and having sides defined by a sidewall surface of the substrate and a ~~bottom~~ second surface defined defining by a bottom surface of the substrate trench;

forming a layer of material on the substrate at the side thereof in which the trench is formed; and

etching the layer of material to form auxiliary patterns therefrom on at least one of said ~~top~~ first and ~~bottom~~ second surfaces of said substrate as spaced laterally along said at least one of the ~~top~~ first and ~~bottom~~ second surfaces from said sidewall surface defining the sides of the trench,

wherein when the mask is used to pattern a photoresist layer, photoresist patterns are formed at areas corresponding to edges of the trench, and are not formed at areas corresponding to the auxiliary pattern.

8. (original) The method as claimed in claim 7, wherein said forming a layer of material on the substrate comprises forming a layer of an optical interference material on the substrate.

9. (original) The method as claimed in claim 7, wherein said forming a layer of material on the substrate comprises forming a layer of an opaque material on the substrate.

10. (original) The method as claimed in claim 9, wherein the opaque material is chromium.

11. (currently amended) The method as claimed in claim 7, wherein said etching a portion of the material comprises forming an auxiliary pattern having a line width of 30 nm to 200 nm on at least one of said ~~top~~ first and ~~bottom~~ second surfaces of said substrate as spaced laterally along said at least one of the ~~top~~ first and ~~bottom~~ second surfaces from said sidewall surface defining the sides of the trench.

12. (new) The method as claimed in claim 7, wherein the transparent substrate is quartz.

13. (new) The method as claimed in claim 7, wherein exposed surfaces of the auxiliary patterns are level.

14. (new) A phase edge phase shift mask comprising:
a transparent substrate having a first surface and a trench constituting a 180° phase shift region, a second surface defining a bottom of the trench, and a sidewall surface extending from the first surface to the second surface and defining the sides of the trench; and
an auxiliary pattern disposed on at least said second surface,
wherein when the mask is used to pattern a photoresist layer, photoresist patterns are formed at areas corresponding to edges of the trench, and are not formed at areas corresponding to the auxiliary pattern.

15. (new) The mask as claimed in claim 14, wherein the transparent substrate is quartz.

16. (new) A phase edge phase shift mask comprising:
a quartz substrate having a first surface a trench constituting a 180° phase shift region, a second surface defining a bottom of the trench, and a sidewall surface extending from the first surface to the second surface and defining the sides of the trench; and
auxiliary patterns disposed on said first and second surfaces,
wherein when the mask is used to pattern a photoresist layer, photoresist patterns are formed at areas corresponding to edges of the trench, and are not formed at areas corresponding to the auxiliary pattern.

17. (new) The mask as claimed in claim 16, wherein the auxiliary pattern is of an optical interference material.

18. (new) The mask as claimed in claim 16, wherein the auxiliary pattern is of an opaque material.

19. (new) The mask as claimed in claim 16, wherein the auxiliary pattern is of chromium.

20. (new) The mask as claimed in claim 16, wherein the auxiliary pattern has a line width of 30 nm to 200 nm.

AMENDMENTS TO THE DRAWINGS

The attached sheets of drawings include changes to FIGs. 3A, 4 and 5-C. These sheets, which include FIG. 3B, replace the original sheets including FIGs. 3A-B, 4 and 5A-C. In FIGs. 3A and 5A-C, typographical errors were corrected in several places to replace reference numeral 100 with 105.

Attachments: Replacement Sheet
Annotated Sheet Showing Changes